TANDY VIS Presentation

Berkeley

VIS System

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VIS Launching System - Overview

- Configures the system as needed by the application.
  - Loads TSR's or Windows as needed.
- Verifies availability of services that may be present in future VIS systems.
- Allows booting from memory cards or discs.
- Provides a configurable menu system for discs with multiple applications.
- Provides support for multi-disc applications.
- Informs the customer when an unusable disc is inserted into the system.

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Development Stages

- MAKETAT is used to convert the Job file into a CONTROL.TAT file.
- The CONTROL.TAT file is placed in the root directory of the ISO or HS disc.
- On start-up, VIS reads the CONTROL.TAT file and performs the specified actions.
- *MAKETAT and the Job file must not be placed on the finished disc.*
- Developer creates a Job file which specifies what executables to run.

Development Stages: Memory Cards

- The developer creates a Job file which specifies what executable(s) to run.
- MAKETATM is used to convert the Job file into a CONTROLM.TAT file.
- The CONTROLM.TAT file is renamed to have the same name as the executable, with the extension "TAT".
- MCLOADR is used to load the executable onto the memory card. The renamed CONTROLM.TAT file is automatically loaded onto the card at the same time.
- On start-up, VIS reads the information that was in the CONTROLM.TAT file and performs the specified actions.

Optimizing VIS Start-up Performance

- Start-up performance can be improved by placing files on the disc in this order:
  - 1. CONTROL.TAT
  - 2. TSR's (if any)
  - 3. SYSTEM.INI (If Windows is used)
  - 4. Starting executable
  - 5. Implicitly loaded DLLs (Windows) or Overlays (DOS)
  - 6. Other INI files (if used in Windows) or configuration files (DOS)
  - 7. Explicitly loaded DLLs (Windows)
  - 8. Data files needed for first display or operations
  - 9. Other executables and data files.

Optimizing VIS Start-up Performance

- If executables and SYSTEM.INI are in subdirectories, place these subdirectories immediately after the root directory.
- Remove unnecessary material from the INI files.
- If the main executable is large, load a small executable first that displays titles, then load the main program.
- Avoid leaving the screen black during loading or processing.

Optimizing VIS CD-Rom Performance

- Use subdirectories only when you must. A file in a subdirectory usually takes longer to access than one in the root directory.
- Avoid organizing file contents by subdirectory. If files are needed at the same time, put them together.
- Try to use a few larger files rather than numerous small files.
- Remove files that are not needed from the disc. Each additional file increases file access time.
- When using sub-subdirectories, consider mastering the ISO 9660 format rather than High Sierra (HS).

VIS Optional Modem/FAX Capabilities

- Modem can send/receive at 2400 baud.
- Modem uses “AT” command set.
- Modem is on COM1, interrupt 4.
- Modem does not have non-volatile storage.
- Modem can operate in FAX mode at 4800 baud. (V.27ter sendfax)
- FAX mode can only send, no reception.

Selecting Video Modes for VIS

- **Limitations of NTSC Video**
  - Cannot display horizontal luminance (BW) resolutions greater than 341 lines.
  - Cannot display horizontal color resolution greater than 1/25th to 1/150th of the picture width.
  - RF output reduces horizontal resolutions slightly compared to composite outputs.
  - S-Video connector only improves luminance resolution, not color resolution.

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Selecting Video Modes for VIS

- **Reasons to Avoid 640x400 Video Modes**
  - Poor processing of images in the vertical axis will result in unacceptable flicker.
  - Luminance details greater than 341 lines are lost in NTSC video.
  - Color details smaller than 13 lines are lost in NTSC video. (26 pixels in 640x400)
  - 640x400 modes have additional wait states. It takes 2.68 times longer to paint the same number of pixels than a 320x200 mode.
  - To draw the entire screen in 640x400, it takes 10.75 times longer than a 320x200 mode.

Special Considerations for VIS

- Some CD-ROM drives can be confused by data file accesses too close to the end of the ISO or HS partition. To prevent this from affecting your application, leave at least 40K of unassigned space at the end of the ISO or HS partition. If you mastering system doesn't allow this, place a 40K file that is never accessed as the last file in the partition.
- If a Windows application is low on RAM space, try to keep the segment size of DLLs at 8K or less. This reduces the amount of data that must be reloaded in memory if a DLL is shed.

Special Considerations for VIS

- To help Windows performance, try to reduce the number of DLL files by combining functions into larger files. Even with the larger DLL file size, try to keep the segment sizes low.
- In the Windows and DOS environment, the current directory remains the root directory unless you explicitly change it. GCD.EXE can be used with DOS programs or prior to invoking Windows to set the current directory. There are also some Windows application calls to control the current directory.

Audio Mixer

- Yes, the API is complex.
- Sample code is available.
- The mixer model: terminology.
- Volume levels.
- Obtaining maximum output.

The mixer model: terminology

- Audio sources and sink devices.
- Mixer input and output lines.
- Line controls.
- Line connections.
- Static and patchable device connections.

Volume levels

- Specified as amount of attenuation.
  - 0 is loudest, 255 is softest.
- Decibels.
  - an increment of 1 in the volume level is a 0.5dB change in volume.
  - a change of 10dB results in a perceived doubling or halving of the volume.

Obtaining maximum output

- **Default volume levels.**
  - wave and midi synthesizer at maximum volume.
  - all other sources at minimum volume.
  - don't rely on the default.
- **Applications should:**
  - minimize volume on devices not producing sound.
  - maximize volume on devices producing sound.

Some differences between development systems and VIS.

- "Development system" is really an emulation system.
- VIS has stripped down DOS and Windows APIs.
  - DOSMON utility catches unsupported DOS calls.
  - Haiku SDK header files catch unsupported Windows calls.
- Likely that more memory available in VIS.
- Audio.
  - louder volume in VIS.
  - record circuit is different.
- VIS runs full 12.5MHz - CPU and bus.

Save-it Cartridge Programming.

- What is it?
- The programming interface (API).
- Handling full cards: the memory card manager.
- Keeping options open for future cards.

What is it?

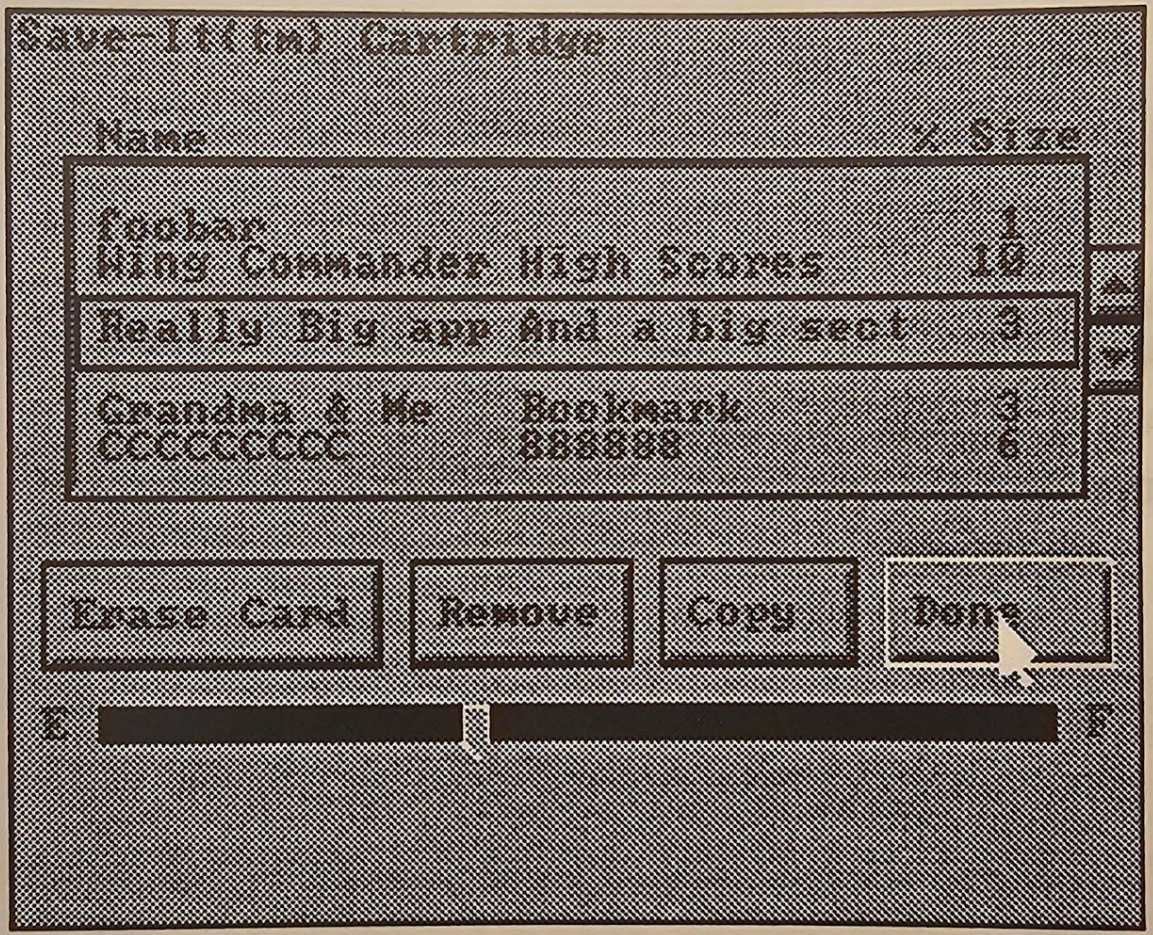
- Removable memory card.
- Non-volatile 32 kb memory.
- Other sizes are available from card manufacturer.
- Typical uses:
  - High scores
  - Program status
  - User preferences

The Programming Interface.

- Memory card libraries for DOS & Windows applications.
- Card organized into sections.
- Data within a section can be any format.

Handling full cards: The memory card manager.

- Inform user that the card is full.
- If user wishes, invoke the memory card manager.


Save-It(tm) Cartridge
Name
% Size
foobar 1
Wing Commander High Scores 10
Really Big app And a big sect 3
Grandma & Me Bookmark 3
CCCCCCCCC BBBBBB 6
Erase Card
Remove
Copy
Done
E
F

Handling full cards: The memory card manager.

- Use descriptive section names.
- Pay attention to the return code.
  - couldn't execute program
  - not enough XMS memory available
  - user did not free enough space
  - success
- Repaint your screen.
- Where do you get the memory card manager?

Keeping options open for future card implementations.

- Avoid constantly writing to cards.
- Don't rely on fast cards.